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10/053,031	01/17/2002	David R. Anderson	H0002113	2129

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[REDACTED] EXAMINER

NGUYEN, NAM THANH

[REDACTED] ART UNIT [REDACTED] PAPER NUMBER

2824

DATE MAILED: 09/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/053,031	ANDERSON, DAVID R.	
	Examiner	Art Unit	
	Nam T Nguyen	2824	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on ____.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-34 (renumbered by the examiner) is/are pending in the application.

4a) Of the above claim(s) ____ is/are withdrawn from consideration.

5) Claim(s) 10-34 is/are allowed.

6) Claim(s) 1-7 is/are rejected.

7) Claim(s) 8 and 9 is/are objected to.

8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on ____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on ____ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.

2. Certified copies of the priority documents have been received in Application No. ____.

3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

<p>1)<input checked="" type="checkbox"/> Notice of References Cited (PTO-892)</p> <p>2)<input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</p> <p>3)<input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u>.</p>	<p>4)<input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____.</p> <p>5)<input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</p> <p>6)<input checked="" type="checkbox"/> Other: <i>EAST search history</i>.</p>
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DETAILED ACTION

Specification

1. Claims 22-33 are objected to because of the following informalities: There are two "claim 22". Claims 22 (in page 24) –33, should be renumbered. For the purpose of this office action, these claims should be renumbered as follow:

-Claim 22 (page 24) would be claim 23.

-Claim 23 would be claim 24.

-Claim 24 would be claim 25.

-Claim 25 would be claim 26.

-Claim 26 would be claim 27.

-Claim 27 would be claim 28.

-Claim 28 would be claim 29.

-Claim 29 would be claim 30.

-Claim 30 would be claim 31.

-Claim 31 would be claim 32.

-Claim 32 would be claim 33.

-Claim 33 would be claim 34.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2, 5-7 are rejected under 35 U.S.C. 102(e) as being anticipated by Frantz et al (U.S. Patent No 6,285,558).

For the purpose of this rejection, the soldering pads of the ball grid array (4, figure 1 of Frantz et al) would be considered as a connector pads because this soldering pads would perform the function of connecting signals together.

With respect to claim 1, figure 6 of Frantz et al discloses a memory module (5) comprising a printed circuit assembly (5) having connector pads (4, as set forth above) at one edge of the assembly (from AF to A in the left side of figure 1), a plurality of memory device (12, figure 6) mounted on the assembly 5 and electrically connected to the connector pads 4. It is also noted that the IC chip (TMS320C6x, column2, line 64, and table 1 in column 3) that drives the memory device 12 (fig.6) has both synchronous and asynchronous interface (see column 4 lines 1-7) for driving the memory device 12, then the memory device 12 (at least there are 4 shown in figure 6) must include both synchronous and asynchronous types of memory devices as set forth in the claim.

With respect to claims 2, 5-7, the memory module in Frantz et al is both synchronous and asynchronous random access memory device (column 4, lines 1-7) and such random access memory is low power RAM (the operating voltage is 1.8V and 2.5V as shown in table 2 of column 4).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frantz et al. in view of Horine et al (U.S. Patent No 6,353,539).

Frantz et al applied as above. The only difference between Frantz et al and claims 3-4 is that Frantz et al is silent on the use of memory module with a synchronous and asynchronous flash memory device..

Horne et al disclose a memory module comprising a printed circuit board (210, figure 3) having connector pads (315, figure 3). Horine et al also teach that their memory module could be used with any type of memory device. Then, it is well known that a memory device (RAM, ROM, flash) could be mounted on any memory module with connector pads.

Therefore, it is obvious to one of ordinary skill in the art at the time the invention was made to modify Frantz et al by mounting a flash memory on a memory module having connector pads for the purpose of package improvement as evidenced by Horine et al.

Allowable Subject Matter

5. Claims 8-9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior arts of record fail to teach or suggest a second select signal connector pad that selects a second subset of memory devices mounted on the module when a signal is applied thereto wherein the second subset of memory devices are synchronous Flash memory devices as claimed in the dependent claims 8 and 9.

6. Claims 23-34 are allowed.

The following is an examiner's statement of reasons for allowance:

There is no teaching or suggestion in the prior art to:

a memory controller on the system board coupled to the memory bus wherein the memory controller is capable of generating signals for control of both synchronous and asynchronous memory devices and wherein the memory controller is capable of multiplexing the signals on the memory bus; a first socket connector on the system board for receiving a first memory module wherein the first socket connector is coupled to the memory controller through said memory bus; and a first memory module inserted in the first socket connector and electrically coupled to the memory controller wherein the first memory module includes a plurality of synchronous or asynchronous memory devices as claimed in the independent claim 11; or

a memory module having a connector edge inserted in the socket connector and having an opposing edge opposite the connector edge wherein the memory module has a notch mated to the key when the memory module is inserted in the socket connector; and a memory module retainer adapted to substantially immobilize the opposing edge with respect to rotation about the key as claimed in the independent claims 23 and 29.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Laudon et al. (US Pat. No. 5,790,447) and Nielsen et al. (US pat. No. 6,078,515) disclose a memory system having multiple addressing and control busses similar to that of the present application.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nam T Nguyen whose telephone number is (703) 305-6494. The examiner can normally be reached on 8 am to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Elms can be reached on (703) 308-2816. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Nam T Nguyen
Examiner
Art Unit 2824



MICHAEL S. LEBENTRITT
PRIMARY EXAMINER